

REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-12, 15, 16 and 22-37 are in the case.

I. CLAIM OBJECTIONS

Claim 2 has been objected to because the amount of residual austenite is not labeled with units. In response, claim 2 has been amended by canceling "5-20%".

Claim 9 has been objected under 35 U.S.C. §1.75(c) as allegedly of improper dependency. In response, claim 9 is now dependent on claim 1 only.

Claim 16 has been objected to in view of a spelling mistake. In response, the European-style language "characterised in that" appearing in claim 16 as well as in other claims, has been cancelled and replaced by "wherein". Withdrawal of the claim objections is now respectfully requested.

II. THE 35 U.S.C. §112, SECOND PARAGRAPH, REJECTION

Claim 1-21 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly indefinite for the reasons given on pages 3 and 4 of the Action. The claims have been amended to deal with these points. The following comments are offered.

With reference to the rejection of claim 1 in view of the expressions "good" and "normal", claim 1 has been amended to refer to a "corrosion resistant steel material". The expression "essentially only impurities at normal contents" appearing at the end of claim 1 has been amended to read "incidental impurities".

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Claim 2 has been rejected on the ground that it is allegedly indefinite because of the term "M(N,C)". In this expression, the letter M designates "metal", and N and C denote nitrogen and carbon. This terminology is well known to persons of ordinary skill in this art and no indefiniteness arises with regard to this terminology. However, in order to expedite prosecution, claim 2 has been amended to remove the references to "M(N,C)" and "Cr₂N".

Claims 3-8, 10-12 and 15 have been objected to as containing preferred ranges. In response, these claims have been amended to remove the preferred statements and the deleted features are presented in new dependent claims 22-32. No new matter is entered.

Claims 17-21 have been objected to as directed to a "use". In response, claims 17-21 have been cancelled without prejudice.

Withdrawal of the outstanding formal rejections is now believed to be in order. Such action is respectfully requested.

III. THE 35 U.S.C. §101 REJECTION

Claims 17-21 stand rejected under 35 U.S.C. §101 as reciting a use. In response, claims 17-21 have been cancelled without prejudice and replaced by new dependent claims 33-37 drafted in a form more suited to US practice. No new matter is entered. Withdrawal of this rejection is respectfully requested.

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IV. THE OBVIOUSNESS REJECTIONS

Claims 1, 3-8, 10, 15 and 16 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent 2002/0164260 A1 (US '260). Claims 2, 11 and 12 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over US '260 in view of Goecmen *et al.* ("Precipitation Behavior and Stability of Nitrides in High Nitrogen Martensitic 9 % and 12 % Chromium Steels", *ISIJ International*, Vol. 36, No. 7, pp. 768-778) and further in view of Webster (U.S. 3,563,813). Claims 13 and 14 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over US '260 in view of Goecmen. Those rejections are respectfully traversed.

With regard to the rejection of claims 13 and 14, those claims have been canceled without prejudice. Withdrawal of the obviousness rejection of claims 13 and 14 is respectfully requested.

Referring to the rejection of claims 1, 3-8, 10, 15 and 16, US '260 relates to a corrosion-resistant steel composition comprising the following elements, in percent by weight (para [0015]):

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	US '260 % by weight	Present invention % by weight
C	< 0.15	Max. 0,12
N	0.40-0.80	0,5-1,5
Cr	12.0-18.5	12-18
Mn	0.1-2.0	Max. 0,5
Ni*	0.2-3.0	Max. 0,5
Mo*	0.2-4.0	1-5 (Mo + W/2)
W*	0.020-0.20	
V*	0.020-0.20	Max. 1,5 (V + Nb/2 + Ti)
Nb*	0.020-0.20	
Ti*	0.020-0.20	
Si	0.10-1.0	0,1-0,5
Co*	0.50-4.0	From traces up to max. 2,0
S*	0.03-0.4	From traces up to max. 0,1
Al	< 0.030	—
O	< 0.020	—
Cu*	0.2-3.0	—
Ta*	0.020-0.20	—
Zr*	0.020-0.20	—
Ca*	0.0020-0.20	—
Mg*	0.001-0.01	—
B*	0.001-0.01	—
Te*	0.005-0.05	—
Se*	0.02-0.20	—
Impurities		Incidental
Fe	Balance	Balance

* The steel of US '260 includes one or more of these elements

At the outset, it is noted that the Action asserts that US '260 is "silent as to the sulfur content" (Action, page 6). This is not fully understood since it appears from the above table that sulfur is present in a certain percentage amount.

Secondly, referring to the comments in the Action relating to claim 10 (which as amended requires the presence of 0.3-1.0 Nb), the alloy described in US '260 does not contain Nb in an amount greater than 0.2 wt.% (0.030 wt.% is clearly lower than 0.2 wt.%). Claim 1 as amended requires the presence of Nb in a minimum amount of 0.3%.

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The assertion in the Action that one of ordinary skill in the art would have been motivated to increase the amount of niobium above the individually taught range of 0.2 wt.% because it functions as a grain refiner, thereby contributing to the strength of the alloy, is not correct. Thus, US '260 states:

"[0046] Nb, V, W, Ti, Ta and Zr: 0.010 to 0.2% by weight.
[0047] Nb, V, W, Ti, Ta and Zr each form a carbonitride that exerts a pinning effect to finely divide the grains and hence enhance the strength of the steel and thus each are an element to be incorporated for these purposes. In order to obtain these effects, it is necessary that Nb, V, W, Ti, Ta and Zr each be incorporated in an amount of 0.010% by weight or more, preferably 0.030% by weight or more. However, when the content of Nb, V, W, Ti, Ta and Zr each is 0.2% by weight or more (in some cases, 0.15% by weight or more), coarse nitrides could be formed, **deteriorating the corrosion resistance and fatigue strength of the steel**. Accordingly, the content of Nb, V, W, Ti, Ta and Zr each are from 0.010 to 0.2% by weight, preferably from 0.030 to 0.15% by weight. Ca, Mg and B: 0.001 to 0.01% by weight." (Emphasis added)

As is clear from the above-quoted portion, US '260 leads away from the presently claimed invention (which requires the minimum presence of 0.3 %Nb) by stating "when the content of Nb, V, W, Ti, Ta and Zr each is 0.2% by weight or more (in some cases, 0.15% by weight or more), coarse nitrides could be formed, **deteriorating the corrosion resistance and fatigue strength of the steel**" (emphasis added).

Based on the above, it is clear that one of ordinary skill would **not** have been motivated to arrive at the presently claimed invention based on US '260 which discloses the possibility of significant disadvantages when the level of Nb rises above 0.2%.

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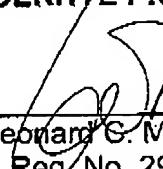
The deficiencies of US' 260 are not cured by the secondary art relied upon in the obviousness rejections. None of that art suggests the presence of a minimum amount of 0.3% Nb.

In light of the above, it is clear that a person of ordinary skill would not have been motivated to arrive at the presently claimed invention based on the cited art. Absent any such motivation, a *prima facie* case of obviousness does not exist in this case. Withdrawal of the obviousness rejections is respectfully requested.

Favorable action is awaited.

Respectfully submitted,

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